

Fig. 1

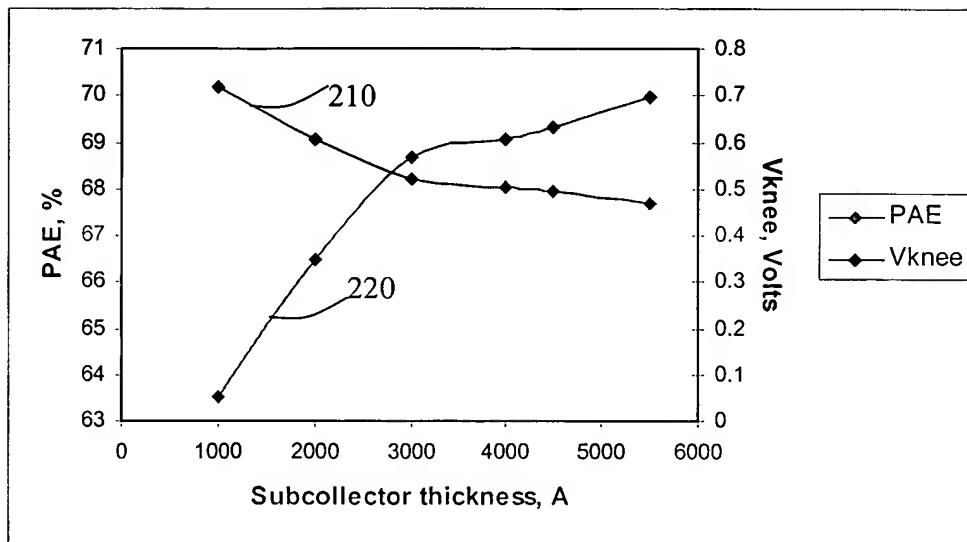


Fig. 2a

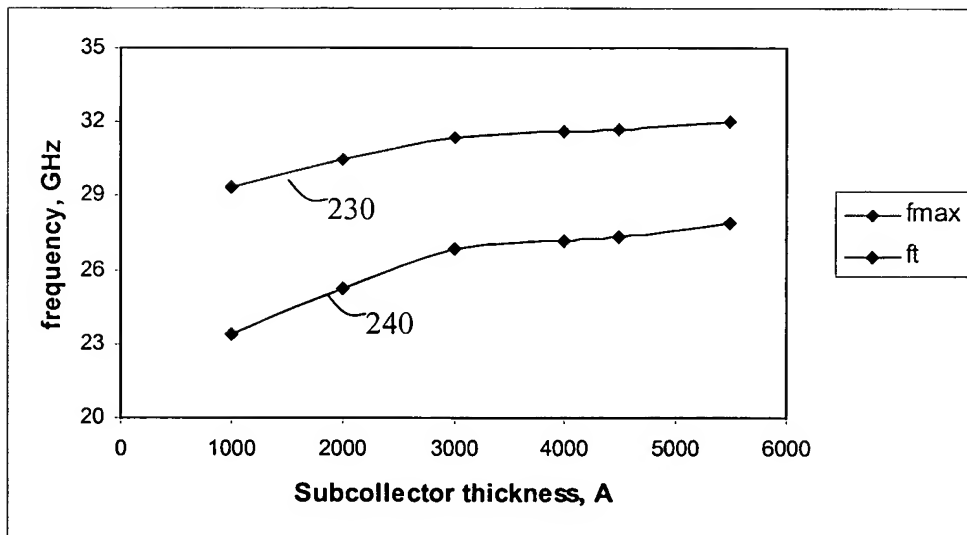


Fig. 2b

Layer	Material	Doping Type	Doping Concentration	Thickness 1 nm = 10 Å	Al or In %
108	InGaAs	Te doped N+	$>1.0E19 \text{ cm}^{-3}$	400Å	60
	InGaAs	Te doped N+	$>1.0E19 \text{ cm}^{-3}$	400Å	linear grade 0-60
	GaAs	Si doped N+	$>4.0E18 \text{ cm}^{-3}$	1200Å	0
107	InGaP	Si doped N+	$3.0E17 \text{ cm}^{-3}$	500Å	lattice matched
106	GaAs	C doped P+	$4.0E19 \text{ cm}^{-3}$	1100Å	0
105	GaAs	Si doped N	$1.5E16 \text{ cm}^{-3}$	7000Å	0
	GaAs	Si doped N	$4.0E16 \text{ cm}^{-3}$	3000Å	0
	GaAs	Si doped N+	$>4.0E18 \text{ cm}^{-3}$	500Å	0
124	InGaP	Si doped N+	$>1.0E18 \text{ cm}^{-3}$	200Å	lattice matched
104	GaAs	Si doped N+	$>4.0E18 \text{ cm}^{-3}$	3500Å	0
103	InGaP	Si doped N+	$>1.0E18 \text{ cm}^{-3}$	200Å	lattice matched
122	GaAs	Si doped N	$3.2E17 \text{ cm}^{-3}$	1200Å	0
	GaAs	Undoped	N/A	500Å	0
121	AlGaAs	Undoped	N/A	2500Å	24
	GaAs	Undoped	N/A	750Å	0

Fig. 3

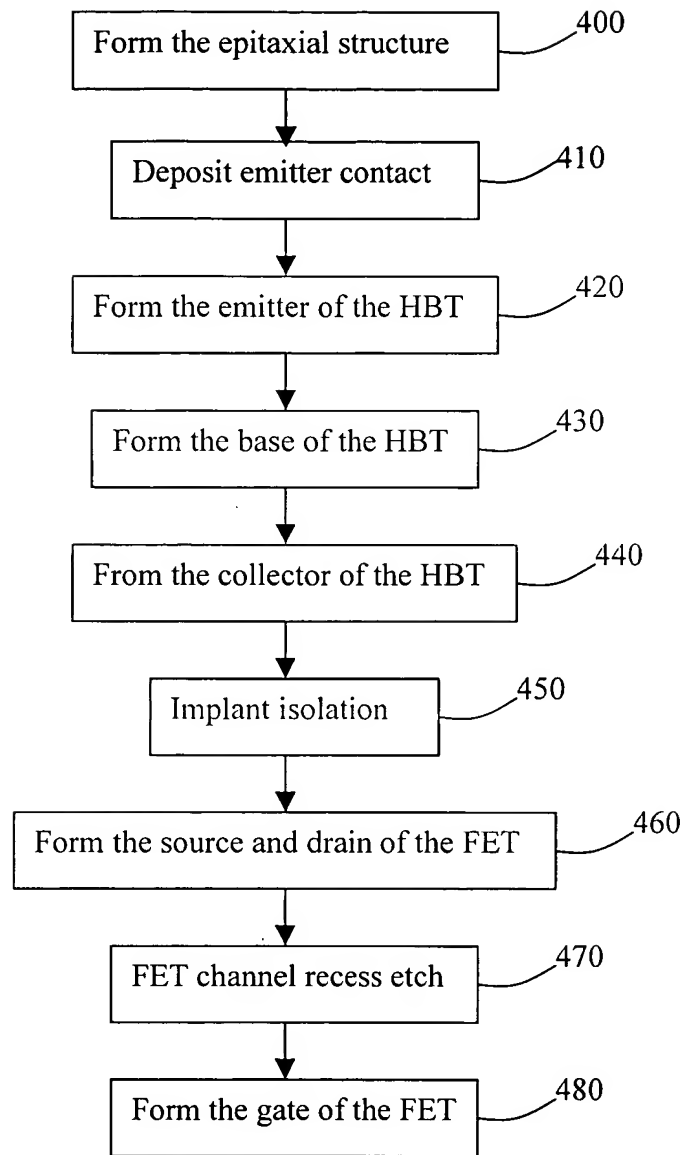


Fig. 4

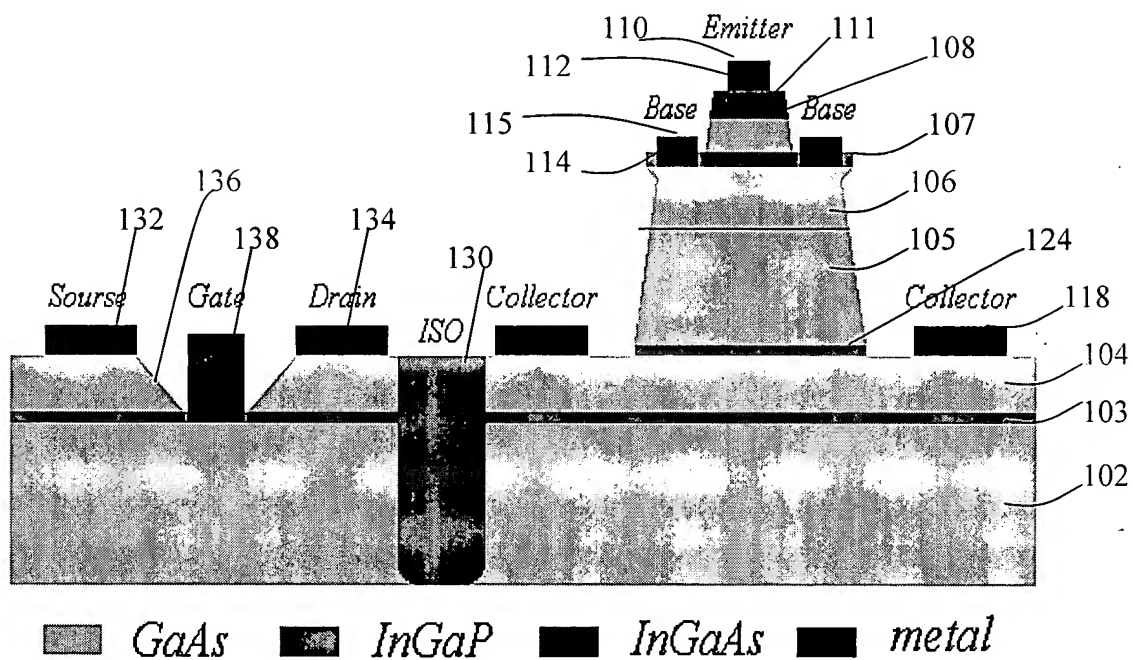


Fig. 5

Parameter	HBT
DC gain	85
f_T , GHz	30 @ 25kA/cm ²
f_{max} , GHz	45 @ 25kA/cm ²
V _{knee} , V	0.5
V _{offset} , V	0.1
B _{vceo} , V	15
B _{vcbo} , V	29.5
B _{vbeo} , V	8

Fig. 6

Parameter	FET
V _p , Volts	-1.5
R _{on} , Ohm mm	3.5
I _{dss} , mA/mm	180
BV _{GD} , Volts	14
I _{leak} , uA/mm	2

Fig. 7